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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/646,784	08/25/2003	Shyamala Maheswaran	0609.5130001/TJS/JLB	1100

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EXAMINER	
AEDER, SEAN E	

ART UNIT	PAPER NUMBER
1642	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/646,784	MAHESWARAN ET AL.	
	Examiner	Art Unit	
	Sean E. Aeder	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 April 2007*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11,14-28 and 31-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11,14-28 and 31-35* is/are rejected.

7)☒ Claim(s) *9 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Detailed Action

The Amendments and Remarks filed 4/30/07 in response to the Office Action of 10/3/06 are acknowledged and have been entered.

Claims 1-11, 14-28 and 31-35 are pending.

Claims 1, 6-9, 11, 18, 25, 26, and 28 have been amended by Applicant.

Claim 35 had been withdrawn.

Claims 1-11, 14-28, and 31-34 are currently under examination.

The following Office Action contains NEW GROUNDS of rejections necessitated by Amendments.

Rejections Withdrawn

The rejection of claims 1-11, 14-28, and 31-34 under 35 U.S.C. 112, second paragraph, are withdrawn.

Response to Arguments

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-11, 14-16, 18-28, and 31-33 remain rejected under 35 U.S.C. 102(b) as being anticipated by Donahoe et al (US Patent 5,661,126; 8/26/97) for the reasons stated in the Office Action of 10/3/06 and for the reasons set-forth below.

In response to the Office Action of 10/3/06, Applicant amended claims and argues that Donahoe et al teaches the use of interferon-γ to increase the effectiveness of MIS, which Applicant states is the exact opposite of the present invention drawn to the use of MIS to increase the effectiveness of interferon-γ. Applicant argues that Donahoe et al does not teach the use of MIS to increase effectiveness of interferon-γ, does not teach the use of MIS to augment the anti-tumor effects of interferon-γ, nor teach the use of MIS to reduce the dose of interferon-γ in the use for the treatment of cancers. Applicant further argues that Donahoe et al does not teach any dose of administration of interferon-γ, wherein the effective amount is a lower dose than the amount given conventionally (e.g. less than 1x10^6 International Units per administration).

The amendments to the claims and the arguments found in the Reply of 4/3/07 have been carefully considered, but are not deemed persuasive. In regards to the argument that Donahoe et al teaches the use of interferon-γ to increase the effectiveness of MIS and the present invention drawn to the use of MIS to increase the effectiveness of interferon-γ, the teachings of Donahoe et al and the rejected claims both recite a method of treating tumors using the same reagents and the same method steps.

In regards to the argument that Donahoe et al does not teach the use of MIS to increase effectiveness of interferon-γ, does not teach the use of MIS to augment the anti-tumor effects of interferon-γ, nor teach the use of MIS to reduce the dose of interferon-γ in the use for the treatment of cancers, the teachings of Donahoe et al and the rejected claims both recite a method of treating tumors using the same reagents and the same method steps.

In regards to the argument that Donahoe et al does not teach any dose of administration of interferon-γ, wherein the effective amount is a lower dose than the amount given conventionally (e.g. less than 1x10^6 International Units per administration), Donahoe et al further teaches a method wherein interferon would be effective between about 0.001 and 10.0 mg/kg body weight of a patient, which is an amount of about 10 international units per administration to an amount of about 100,000 international units per administration (see column 21 lines 16-20, in particular). Further, regarding an amount "less than 1x10^6 International Units per administration", Applicant is arguing limitations not recited the claims of this rejection. Further, as evidenced by Kurzrock et al (Cancer Research, June 1985, 45:2866-2872), dose-limiting toxicities of high fever and generalized weakness (i.e. a "side effects") for patients that are administered interferon-γ occur above 2.5 mg/sq m (which, using a Km of 37, is about 92.5 mg/kg – a dose much greater than taught by Donahoe et al) (see right column of page 2871, in particular). Therefore, the method of Donahoe et al uses an effective amount of interferon-γ that results in decreased side effects, such as high fever and general weakness, associated with interferon-γ.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-11, 14-28, and 31-34 remain rejected under 35 U.S.C. 103(a), as being unpatentable over Donahoe et al (US Patent 5,661,126; 8/26/97) in view of Cohen (Int. J. Radiation Oncology Biol. Phys., 2/87, 13(2): 251-258), for the reasons stated in the Office Action of 10/3/06 and for the reasons set-forth below.

In response to the Office Action of 10/3/06, Applicant repeats the same arguments found in the 102(b) rejection above. Applicant further states that prior to the present invention, methods to reduce the side effects of interferon-γ were not known. Without such knowledge, Applicants assert that combining and modifying Donahoe and Cohen in order to practice the claimed invention would not have been reasonably expected to succeed at the time of the present invention.

The amendments to the claims and the arguments found in the Reply of 4/3/07 have been carefully considered, but are not deemed persuasive. See above for a reply to the arguments regarding Donahoe et al. Further, in regards to the statement that prior to the present invention, methods to reduce the side effects of interferon-γ were not known, one of skill in the art would recognize that most therapeutic treatments have side effects and said side effects can be attenuated by lowering doses. Further, as

evidence by Kurzrock et al, interferon-γ was known to have intolerable side effects at high doses that could be attenuated by lowering the dose (see right column of page 2871, in particular). Therefore, using the teachings of Cohen et al, one of skill in the art would clearly treat patients with low dosages of the reagents (including interferon-γ) used in the treatment taught by Donahoe et al in order to attenuate side effects.

New Objections

Claims 9 and 26 are objected to for reciting an apparent typographical error. Claims 9 and 26 recite: "...or has amino acid sequence of SEQ ID NO:11". There appears to be a word missing between "or" and "has". It is suspected Applicant intends claims 9 and 26 to recite: "...or has **the** amino acid sequence of SEQ ID NO:11". Proper correction is required.

New Rejections Necessitated by Amendments

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-11, 14-28, and 31-34 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the

application was filed, had possession of the claimed invention. This is a **NEW MATTER** rejection.

Claims 1, 6-8, and 18 recite a genus of fragments of MIS having the amino acid sequence of SEQ ID NO:5 or 6. Descriptions of fragments of MIS having the amino acid sequence of SEQ ID NO:5 or 6 are not found in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the invention was filed, had possession of the claimed invention.

Claim 26 recites a genus of fragments of amino acids with SEQ ID NO:11. Descriptions of fragments of amino acids with SEQ ID NO:11 are not found in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the invention was filed, had possession of the claimed invention.

Claims 9 and 26 recite a genus of C-terminal fragments comprising 108 or more amino acids at the C-terminal. Descriptions of C-terminal fragments comprising 108 or more amino acids at the C-terminal are not found in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventors, at the time the invention was filed, had possession of the claimed invention.

It is noted that a description of a genus may be achieved by means of a recitation of a representative number of species falling within the scope of the genus or by describing structural features common to that genus that "constitute a substantial portion of the genus." See University of California v. Eli Lilly and Co., 119 F.3d 1559, 1568, 43 USPQ2d 1398, 1406 (Fed. Cir. 1997): "A description of a genus of cDNAs may

be achieved by means of a recitation of a representative number of cDNA, defined by nucleotide sequence, falling within the scope of the genus or of a recitation of structural features common to the members of the genus, which features constitute a substantial portion of the genus."

The inventions at issue in Lilly were DNA constructs per se, the holdings of that case is also applicable to claims such as those at issue here. Further, disclosure that does not adequately describe a product itself logically cannot adequately describe a method of using that product.

The court has since clarified that this standard applies to compounds other than cDNAs. See University of Rochester v. G.D. Searle & Co., Inc., F.3d, 2004 WL 260813, at *9 (Fed.Cir.Feb. 13, 2004). The instant specification fails to provide sufficient descriptive information, such as definitive structural or functional features that are common to the genera. That is, the specification provides neither a representative number of sequences that encompass the genera nor does it provide a description of structural features that are common to genera. Since the disclosure fails to describe common attributes or characteristics that identify members of the era and because the genera is highly variant, the disclosure of SEQ ID NOs:5, 6, and 11 is insufficient to describe the genera. Thus, one of skill in the art would reasonably conclude that the disclosure fails to provide a representative number of species to describe and enable the genera as broadly claimed.

Vas-Cath Inc. v. Mahurkar, 19USPQ2d 1111, clearly states "applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought,

he or she was in possession *of the invention*. The invention is, for purposes of the 'written description' inquiry, *whatever is now claimed.*" (See page 1117.) The specification does not "clearly allow persons of ordinary skill in the art to recognize that [he or she] invented what is claimed." (See *Vas-Cath* at page 1116). As discussed above, the skilled artisan cannot envision the detailed chemical structure of the encompassed genera, and therefore conception is not achieved until reduction to practice has occurred, regardless of the complexity or simplicity of the method of isolation. Further, it is noted that the art does not teach a representative number of the genera. Adequate written description requires more than a mere statement that it is part of the invention and reference to a potential method of isolation. The compound itself is required. See *Fiers v. Revel*, 25 USPQ2d 1601 at 1606 (CAFC 1993) and *Amgen Inc. v. Chugai Pharmaceutical Co. Ltd.*, 18 USPQ2d 1016.

One cannot describe what one has not conceived. See *Fiddes v. Baird*, 30 USPQ2d 1481 at 1483. In *Fiddes*, claims directed to mammalian FGF's were found to be unpatentable due to lack of written description for that broad class. The specification provided only the bovine sequence. Applicant is reminded that *Vas-Cath* makes clear that the written description provision of 35 U.S.C. §112 is severable from its enablement provision (see page 1115).

Summary

No claim is allowed.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a). A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sean E. Aeder, Ph.D. whose telephone number is 571-272-8787. The examiner can normally be reached on M-F: 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shanon Foley can be reached on 571-272-0898. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

SEA
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